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Complement-dependent lysis of tumor cells by a baboon IgM antibody to a tumor-associated antigen.

Hunt KK, Shibata M, Gupta RK, Morton DL

John Wayne Institute for Cancer Treatment and Research, Santa Monica, California 90404.

We developed a high-titer polyclonal antiserum to a glycoprotein tumor-associated antigen (TAA) by immunization of a baboon with the purified glycoprotein antigen. The baboon serum was fractionated into IgG and IgM components by DEAE Affi-Gel blue chromatography. The ability of the baboon IgM anti-TAA antibody to effect tumor cell lysis in the presence of complement was tested using a chromium-release assay. The baboon antibody was able to lyse melanoma target cells (20.8%-71.4% cytolysis), breast carcinoma cells (36.5%-38.9% cytolysis), and a neuroblastoma cell line (35.5% cytolysis) in the presence of complement but did not effect significant lysis of autologous lymphoblastoid cell lines (4.9% cytolysis) or peripheral blood lymphocytes from healthy volunteers (12.6% cytolysis). Cytolysis of melanoma target cells was completely inhibited by preabsorption of the IgM anti-TAA antibody with UCLA-SO-M14 (M14) cells and partially inhibited by preabsorption with several other

melanoma cell lines. There was no significant inhibition of tumor cell lysis after preabsorption of the antibody with lymphoblastoid cell lines. Complement-dependent lysis of M14 targets could be blocked by addition of the purified antigen to the antibody prior to incubation with the tumor cells. Our results suggest that the glycoprotein TAA resides on the tumor cell surface and that the baboon IgM anti-TAA antibody recognizes the antigen on the cell surface and is able to fix complement and effect the lysis of the tumor cells.

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